

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-37 (Canceled).

Claim 38 (New) A bi-directional printing apparatus that bi-directionally prints images on a print medium during forward and reverse main scanning passes in accordance with print image signals, the printing apparatus comprising:

a print head configured to print dots at each pixel position on the print medium;

a main scanning drive mechanism configured to effect bi-directional main scanning by moving at least one of the print medium and the print head;

a sub-scanning drive mechanism configured to effect sub-scanning by moving at least one of the print medium and the print head;

a head driver configured to supply drive signals to the print head to effect printing on the print medium; and

a controller configured to control bi-directional printing, the controller including a printing position adjuster that uses a bi-directional printing position adjustment value to reduce printing positional deviation arising between the forward and reverse main scanning passes,

wherein the printing position adjuster includes:

a first memory configured to store a reference correction value for correcting the printing positional deviation arising between the forward and reverse main scanning passes with respect to specific reference dots formed by the print head,

a second memory configured to store a relative correction value prepared beforehand for correcting the reference correction value with respect to a bi-directional printing position deviation, and

an adjustment value determination section configured to determine the bi-directional printing position adjustment value, the adjustment value determination section having at least a first adjustment mode in which the bi-directional printing position adjustment value is determined by correcting the reference correction value with the relative correction value.

Claim 39 (New) A bi-directional printing apparatus according to claim 38, wherein the print head has a plurality of nozzle rows;

the reference correction value is a correction value for correcting the printing positional deviation arising between the forward and reverse main scanning passes with respect to a reference row of nozzles; and

the relative correction value is a correction value for correcting a relative printing positional deviation of another row against the reference row.

Claim 40 (New) A bi-directional printing apparatus according to claim 39, wherein the reference row is a row of nozzles configured to emit black ink and the another row includes a row of nozzles configured to emit chromatic color ink.

Claim 41 (New) A bi-directional printing apparatus according to claim 39, wherein the second memory stores the relative correction value that is applied in common to rows of nozzles other than the reference row.

Claim 42 (New) A bi-directional printing apparatus according to claim 39, wherein the second memory stores relative correction values that are applied independently to respective rows of nozzles other than the reference row.

Claim 43 (New) A bi-directional printing apparatus according to claim 39, wherein the second memory stores the relative correction values that are applied independently to respective groups of nozzles configured to emit respective inks.

Claim 44 (New) A bi-directional printing apparatus according to claim 38, wherein the print head prints N types (where N is an integer of 2 or more) of dots that are different at least in size;

the reference dots are one type of dots selected from among the N types of dots; and the bi-directional printing position adjustment value is applied in common to the N types of dots in the first adjustment mode.

Claim 45 (New) A bi-directional printing apparatus according to Claim 44, wherein the reference dots are largest of the N types of dots.

Claim 46 (New) A bi-directional printing apparatus according to claim 44, wherein the relative correction value substantially represents a difference between an amount of positional deviation relating to target dots and an amount of positional deviation relating to the reference dots, the target dots including at least one type of dots among the N types of dots, the at least one type of dots including dots smaller than the reference dots.

Claim 47 (New) A bi-directional printing apparatus according to claim 46, wherein the target dots are smallest of the N types of dots.

Claim 48 (New) A bi-directional printing apparatus according to claim 46, wherein the target dots include plural types of dots of different sizes, and an average of positional

deviation amounts of the plural types of dots is used as the amount of positional deviation for the target dots.

Claim 49 (New): A bi-directional printing apparatus according to claim 46, wherein the reference dots are formed of black ink and the target dots are formed of chromatic color ink.

Claim 50 (New): A bi-directional printing apparatus according to claim 38, wherein the adjustment value determination section has a second adjustment mode in which the reference correction value is used as the bi-directional printing position adjustment value.

Claim 51 (New) A bi-directional printing apparatus according to claim 50, wherein the adjustment value determination section effects correction of the printing positional deviation in accordance with the first adjustment mode during color printing, and effects correction of the printing positional deviation in accordance with the second adjustment mode during monochrome printing.

Claim 52 (New) A bi-directional printing apparatus according to claim 38, wherein the reference correction value is determined according to correction information indicative of a preferred correction state that is selected from among test patterns of positional deviation printed using the reference dots.

Claim 53 (New) A bi-directional printing apparatus according to claim 38, wherein the bi-directional printing apparatus performs main scanning at a plurality of main scanning

velocities, and the second memory stores the relative correction values that are applied independently to the plurality of main scanning velocities.

Claim 54 (New) A bi-directional printing apparatus according to claim 38, wherein the bi-directional printing apparatus emits ink in a plurality of dot emission modes of mutually different ink emission velocities, and the second memory stores the relative correction values that are applied independently to the plurality of dot emission modes.

Claim 55 (New) A bi-directional printing apparatus according to claim 38, wherein the second memory is a non-volatile memory provided within the bi-directional printing apparatus.

Claim 56 (New) A bi-directional printing apparatus according to claim 38, wherein the second memory is attached to the print head so that the print head with the second memory is detachably attached to the bi-directional printing apparatus.

Claim 57 (New) A bi-directional printing method with a printing apparatus having a print head for bi-directionally printing images on a print medium during forward and reverse main scanning passes in accordance with print image signals, the method comprising:

setting a reference correction value for correcting printing positional deviation arising between the forward and reverse main scanning passes with respect to specific reference dots formed by the print head;

determining a bi-directional printing position adjustment value to reduce printing positional deviation arising between the forward and reverse main scanning passes; and

adjusting the printing positional deviation between the forward and reverse main scanning passes using the bi-directional printing position adjustment value,

wherein determining the bi-directional printing position adjustment value includes at least a first adjustment mode that corrects the reference correction value with a relative correction value prepared beforehand for correcting the reference correction value with respect to a bi-directional printing position deviation.

Claim 58 (New) A bi-directional printing method according to claim 57, wherein the print head has a plurality of nozzle rows; ,  
the reference correction value is a correction value for correcting the printing positional deviation arising between the forward and reverse main scanning passes with respect to a reference row of nozzles; and  
the relative correction value is a correction value for correcting relative printing positional deviation of another row against the reference row.

Claim 59 (New) A bi-directional printing method according to claim 58, wherein the reference row is a row of nozzles for emitting black ink and the another row includes a row of nozzles for emitting chromatic color ink.

60 (New) A bi-directional printing method according to claim 58, wherein the relative correction value is applied in common to rows of nozzles other than the reference row.

61 (New) A bi-directional printing method according to claim 58, wherein the relative correction value is prepared for each of the rows of nozzles other than the reference

row so that relative correction values are applied independently to respective rows of nozzles other than the reference row.

Claim 62 (New) A bi-directional printing method according to claim 58, wherein the relative correction value is prepared for each group of nozzles for emitting respective inks so that the relative correction values are applied independently to respective groups of nozzles for emitting respective inks.

Claim 63 (New) A bi-directional printing method according to claim 57, wherein the print head prints N types (where N is an integer of 2 or more) of dots that are different at least in size;

the reference dots are one type of dots selected from among the N types of dots; and the bi-directional printing position adjustment value is applied in common to the N types of dots in the first adjustment mode.

Claim 64 (New): A bi-directional printing method according to claim 63, wherein the reference dots are largest of the N types of dots.

Claim 65 (New) A bi-directional printing method according to claim 63, wherein the relative correction value substantially represents a difference between an amount of positional deviation relating to target dots and an amount of positional deviation relating to the reference dots, the target dots including at least one type of dots among the N types of dots, the at least one type of dots including dots smaller than the reference dots.

Claim 66 (New) A bi-directional printing method according to claim 65, wherein the target dots are smallest of the N types of dots.

Claim 67 (New) A bi-directional printing method according to claim 65, wherein the target dots include plural types of dots of different sizes, and an average of positional deviation amounts of the plural types of dots is used as the amount of positional deviation for the target dots.

Claim 68 (New) A bi-directional printing method according to claim 65, wherein the reference dots are formed of black ink and the target dots are formed of chromatic color ink.

Claim 69 (New) A bi-directional printing method according to claim 57, wherein determining the bi-directional printing position adjustment value includes at least a second adjustment mode in which the reference correction value is used as the bi-directional printing position adjustment value.

Claim 70 (New) A bi-directional printing method according to claim 69, wherein the adjustment of the printing positional deviation is executed in accordance with the first adjustment mode during color printing, and in accordance with the second adjustment mode during monochrome printing.

Claim 71(New): A bi-directional printing method according to claim 57, wherein the reference correction value is determined according to correction information indicative of a preferred correction state that is selected from among test patterns of positional deviation printed using the reference dots.



Claim 72 (New) A bi-directional printing method according to claim 57, wherein the printing apparatus performs main scanning at a plurality of main scanning velocities, and the relative correction value is prepared for each main scanning velocity so that the relative correction values are applied independently to the plurality of main scanning velocities.

Claim 73 (New) A bi-directional printing method according to claim 57, wherein the printing apparatus emits ink in a plurality of dot emission modes of mutually different ink emission velocities, and the relative correction value is prepared for each dot emission mode so that the relative correction values are applied independently to the plurality of dot emission modes.

Claim 74 (New) A computer program product storing a computer program for causing a computer to bi-directionally print images on a print medium during forward and reverse main scanning passes, the computer including a printing apparatus having a print head for printing plural types of dots on the print medium, the computer program product comprising:

a computer readable medium; and

a computer program stored on the computer readable medium,

wherein the computer program causes the computer to determine a bi-directional printing position adjustment value to reduce printing positional deviation arising between the forward and reverse main scanning passes in accordance with at least a first adjustment mode in which the bi-directional printing position deviation adjustment value is determined by correcting a reference correction value for specific reference dots with a relative correction

value prepared beforehand for correcting the reference correction value with respect to a bi-directional printing position deviation.